

(1) (a) $P(A \cup B) = P(A) + P(B) - P(A \cap B)$ ← general rule
 $0.26 + 0.41 - 0.1 = 0.57$

(b) $P(B|A) = \frac{P(A \cap B)}{P(A)}$ ← general rule

$\frac{0.1}{0.26} = 0.385$

(c) Disjoint?

Check: $P(A \cap B) = 0$?

$P(A \cap B) = 0.1 \neq 0$

(No)

(2) Independent

$P(A \cap B) = P(A) \cdot P(B)$

$P(A \cap B) = (0.42)(0.33) = 0.1386$

(3) (a) $P(A \cap B) = P(A) \cdot P(B|A)$ ← general rule

$(0.6)(0.2) = 0.12$

(b) $P(A \cup B) = P(A) + P(B) - P(A \cap B)$
 $= (0.6) + (0.34) - (0.12)$

$= 0.82$

4) (a) {6, 12}

(b) 2/20

(c) {0, 2, 3, 5, 6, 9, 11, 12, 13, 15, 17, 19}

(d) 3/20 {3, 9, 15}

(e) 10/20

(f) 2/20 {1, 7}

(g) 10/20 = $P(c^c)$

(h) {1, 13, 15, 17, 19}